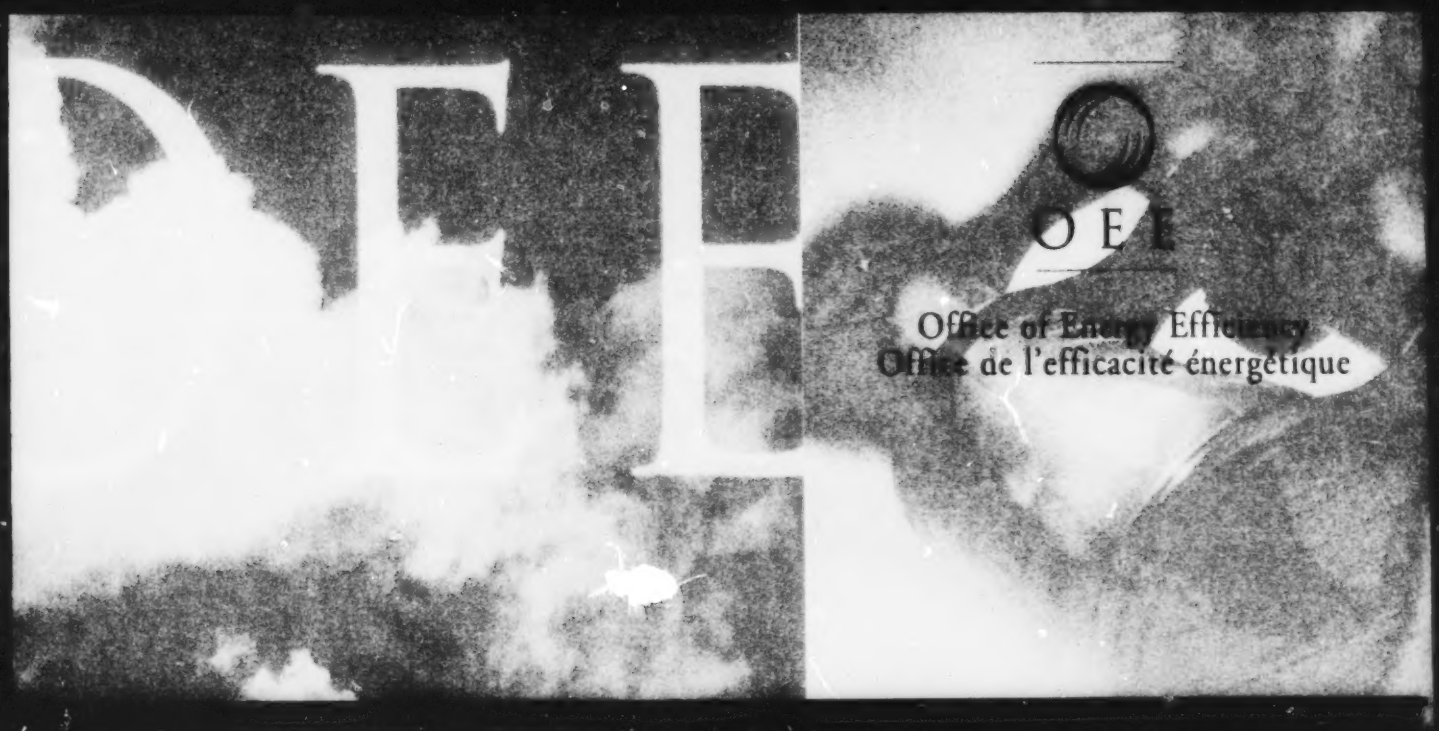

usiness Plan

1999 2000

Natural Resources Canada
Office of Energy Efficiency

Ressources naturelles Canada
Office de l'efficacité énergétique

Canada

Office of Energy Efficiency

Business Plan

1999/2000

OEE

Office of Energy Efficiency
Office de l'efficacité énergétique

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Foreword

The Office of Energy Efficiency (OEE) was established as part of Natural Resources Canada (NRCan) with a mandate to renew, strengthen and expand Canada's commitment to energy efficiency and to address the challenges of climate change with specific emphasis on the Kyoto Protocol.

This document constitutes OEE's Business Plan for 1999/2000.

The OEE *Business Plan* is first and foremost an accountability accord with Natural Resources Canada senior management. It is also a communications tool to inform insiders and other readers on the OEE's planning logic and where the OEE is going.

The Plan responds to the following five precise questions that are addressed in five chapters:

- What outcome does the OEE want to achieve and why?
- What main factors will influence the OEE's planning this year?
- What will the OEE's priorities, strategies and activities be this year?
- How will the OEE know if it is making progress and moving in the right direction?
- What will OEE resources (human and financial) be this year, and how will the budget be allocated?

For more information about the OEE, readers are invited to consult the OEE's Web site (http://oee.nrcan.gc.ca) or other documents produced by the OEE, which explain in greater detail the OEE's programs, progress to date and developments in end-use energy markets. These other documents include the following:

- *The State of Energy Efficiency in Canada: Annual Report of the OEE* (1999);
- *Energy Efficiency Trends in Canada 1990 to 1997: A Review of Indicators of Energy Use, Energy Efficiency and Emissions* (1999);
- *Report to Parliament on the Administration and Enforcement of the* Energy Efficiency Act (1996–97).

Section 1: Overview of the Office of Energy Efficiency

This section provides background information on the OEE and describes its vision, strategic objectives, management priorities, business lines and organizational structure for the year 1999/2000.

1.1 Background

The OEE follows a long history of organizations and programs at NRCan to promote energy conservation, energy efficiency and alternative sources of energy as a means of protecting the environment and strengthening Canada's economic competitiveness. Annex 1 presents an historical overview of these developments and their rationale, since the early 1970s. The creation of the OEE is, however, more closely related to the emergence of the climate change issue during the 1990s.

In June 1992, Canada and more than 150 other countries signed the Framework Convention on Climate Change at the United Nations Conference on Environment and Development in Rio de Janeiro. The Convention includes a commitment to stabilize greenhouse gas emissions at 1990 levels by the year 2000. Pursuant to the Rio Conference and the Berlin Conference (1995), the Parties to the Framework Convention on Climate Change held their third conference in Kyoto, Japan, from December 1 to 10, 1997. Participating countries agreed to a timetable of emissions reduction from 1990 levels to be reached on average between 2008 and 2012. Canada pledged to reduce its emissions by six percent below 1990 levels by that time period.

At a federal-provincial conference of First Ministers held later in December 1997, energy and environment ministers were asked to develop a new strategy within two years to meet the Kyoto Protocol targets. The National Climate Change Secretariat was established by the ministers to co-ordinate this work and to support the development of a national implementation strategy to meet the Kyoto targets.

Increasing energy efficiency is a key component of Canada's response to the Kyoto challenge. It was in this context, in December 1997, that Minister Ralph Goodale announced the creation of the OEE.

1.2 Mandate

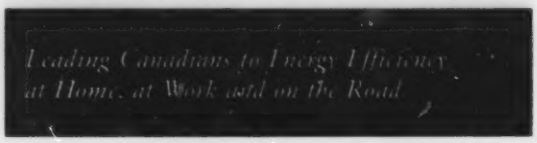
The OEE was established as part of NRCan with a mandate to renew, strengthen and expand Canada's commitment to energy efficiency and to address the challenges of climate change with specific emphasis on the Kyoto Protocol. The OEE officially commenced its operations on April 1, 1998.

The OEE brings together NRCan's non-R&D energy efficiency and alternative transportation fuels programs under a single organization with a strong, central corporate image, a comprehensive information dissemination strategy, and a proactive approach to promoting energy efficiency and alternative transportation fuels. In addition to delivering an array of programs, the OEE's responsibilities include the following:

- reporting annually on the state of energy efficiency in Canada and communicating up-to-date energy efficiency information through its publications and web site;
- annually organizing Canada's Energy Efficiency Conference;
- presenting Canada's Energy Efficiency Awards to recognize achievements in energy efficiency projects and programs; and
- developing new measures to increase the impact and reach of NRCan's energy efficiency programs and activities, such as expanded regulations and labelling requirements, and new marketing and information programs.

1.3 Vision

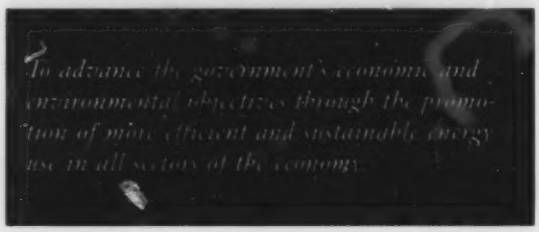
In April 1998, OEE management and employees adopted a succinct and simple vision statement:



This vision defines the direction OEE has set for itself and where it wants to be in a few years.

1.4 Mission

The OEE's ongoing reason for being is summarized in the following mission statement:


To advance the government's economic and
environmental objectives through the promo-
tion of more efficient and sustainable energy
use in all sectors of the economy

The OEE accomplishes its mission through the following five activities:

- provide policy advice and information on economic, environmental and other societal issues that affect energy use in Canada;
- creatively and effectively use its resources and abilities to help Canadians achieve greater energy efficiency and make use of alternative transportation fuels;
- maintain a comprehensive understanding of the issues and opportunities related to increasing the efficiency and productivity of energy use in Canada;

- consult and co-operate through partnerships; and
- communicate its achievements and Canada's progress in attaining higher levels of energy efficiency and better use of alternative transportation fuels.

1.5 Strategic Objectives

The OEE's strategic objectives are to meet the needs of its clients and address the opportunities and challenges identified in the environmental scan (see Section 2.4, page 11). The strategic objectives describe what the OEE intends to achieve. These objectives are described as follows:

- exercise a leadership role in the elaboration of the National Implementation Strategy on Climate Change;
- increase the efficiency of energy use and the use of alternative transportation fuels in Canada, where this contributes to the limitation of greenhouse gas emissions, other environmental improvements, expanded domestic supply of related products and services, and the competitiveness of Canadian industry and business;
- develop key information for public decision making on energy efficiency and alternative transportation fuels through comprehensive databases and analysis of Canadian energy use, policy advice and co-operative activities;
- provide Canadians with comprehensive and accurate information on energy efficiency and alternative transportation fuels, both generally and in relation to OEE program initiatives, to ensure that decisions take those aspects into account; and
- ensure that the OEE is recognized as the leading centre for energy efficiency knowledge, programs and advice.

1.6 Management Priorities

The OEE has set the following six management priorities for 1999/2000:

- to manage the significant OEE contribution to the National Climate Change Implementation Strategy, including the launching of new program initiatives in 1999/2000 concurrent with the delivery of existing program initiatives;
- to position the OEE to address the outcomes of the National Climate Change Implementation Strategy, which will require increasing the level of effort for several activities such as policy development and analysis, personnel development, data gathering, program review and assessment;
- to establish the OEE as a one-stop centre for program information, expertise and client partnerships by marketing the OEE's activities to key decision-makers and stakeholders;
- to foster a work environment that encourages continuous learning for employees and supports their careers and personal development in the framework of NRCan's strategic orientations;
- to strengthen the monitoring of its spending and activities; and

- to strengthen the performance measurement of its programs and activities as a tool for planning, reporting and evaluating. The OEE will report in ways that are more accessible to ministers, members of parliament and the Canadian public without losing the usefulness of outcome-based management for individual program development and accountability.

1.7 Business Lines

In support of the vision and mission statements, the OEE delivers its programs through five business lines. The five business lines and their key activities are as follows:

Data, Analysis and Policy Advice

- analyse, co-ordinate and develop policy and program options in the areas of energy efficiency and alternative transportation fuels;
- prepare briefing material for the Minister and senior officials on energy efficiency and alternative transportation fuel policies and programs;
- develop and maintain a comprehensive and fully integrated data management, analysis and dissemination system on energy end-use, and provide economic and energy analysis on energy efficiency and its determinants;
- provide energy and economic analysis and policy advice on the development of energy performance and labelling regulations, and co-ordinate the preparation of necessary documents for central agencies and participate in consultations on these regulations; and
- co-ordinate federal-provincial relations on efficiency and alternative energy programs.

Targeted Voluntary Programs

- help individuals, businesses, institutions and governments make energy efficiency choices by providing tools to remove market barriers; e.g., knowledge and financial analysis techniques;
- publicly recognize achievements and communicate success through action plan registries, case studies and awards; and
- support the delivery and promotion of activities to address market barriers to energy efficiency.

Financial Incentives

- encourage end-users, through financial incentives, to incorporate energy-efficient technologies and practices when they acquire, design or construct new buildings or retrofit existing buildings.

Regulations and Standards

- maintain the current inventory of regulated minimum energy efficiency performance and labelling requirements, and manage the generation of draft regulations regarding requirements for additional products;
- maintain enforcement and monitoring capabilities to provide assurance that current product standards on energy efficiency are respected;
- manage departmental support for the development of energy efficiency test standards, and maintain those already in place; and

- develop and implement promotional and information material in support of regulatory and labelling programs.

Information and Communications

- create awareness among Canadians of the economic and environmental benefit of energy efficiency and alternative transportation fuels;
- inform energy end-users about the various products, services and programs that can help reduce energy consumption;
- prepare and distribute OEE communications materials such as its *Report to Parliament on the Administration and Enforcement of the* Energy Efficiency Act; and
- monitor and report on efficiency and alternative energy policy and program developments by other governments (provincial, territorial, municipal and foreign).

Table 1 (below) outlines some of the guiding principles of each of the OEE's five business lines.

Table 1 – Guiding Principles of the Office of Energy Efficiency's Five Business Lines

Data, Analysis and Policy Advice

- **Empirically based policy advice**
- **Measurement of opportunities and performances**
- **Rigorous methodology**
- **Effective dissemination**

Regulations and Standards

- **Where necessary and necessarily well administered**
- **Developed with industry**
- **Harmonized with trading partners**

Information and Communications

- **Accessible and reliable**
- **Performance targeted**
- **Not self-serving**
- **New approaches to dissemination**
- **"High class"**

Targeted Voluntary Programs

- **Private interests that have public-good consequences**
- **Public good at least cost to private interests**
- **Performance-based outcomes**
- **Aggressive modern approaches**

Fiscal Incentives

- **Set of criteria for accessibility**
- **Contribution ceiling and strong internal controls**
- **Fiscal incentive level aimed at optimizing return on investment**

1.8 Structure of the OEE

Figure 1 (page 7) shows the OEE's organizational chart. The OEE is composed of the Director General's office, four divisions and two corporate groups. One member of the Director General's office is a science and technology advisor on environment, energy efficiency and alternative transportation fuels. Policy, data collection and analysis services are centralized in one division. The three other divisions handle initiatives targeted to specific sectors of the economy. The OEE also comprises six internal working groups that deal with specific projects and has an external advisory committee.

1.8.1 Divisions and Corporate Groups

The **Demand Policy and Analysis Division** (DPAD) acts, on behalf of the federal government, as the focal point for public and private sector energy efficiency data, analysis, policy and program information. The DPAD also monitors energy intensity in various sectors.

The **Industrial, Commercial and Institutional Programs Division** (ICIPD) promotes and facilitates investments in energy efficiency in the commercial, institutional, industrial and government sectors in Canada through programs that provide information, advice, recognition and incentives.

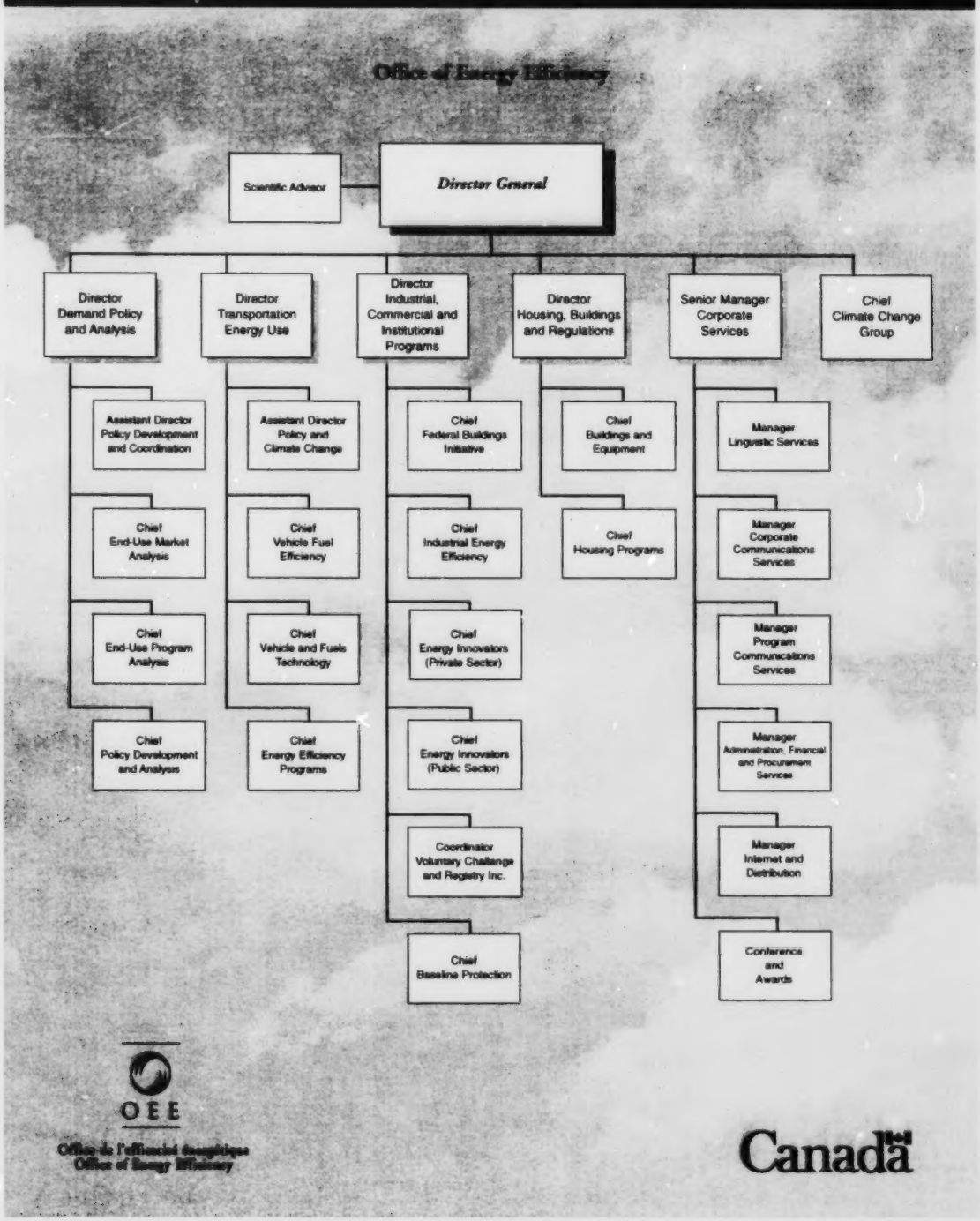
The **Transportation Energy Use Division** shares with the Energy Technology Branch the responsibility for federal programs in the fields of transportation energy efficiency and future fuels.

The **Housing, Buildings and Regulations Division** promotes the market penetration of energy-efficient technologies and practices in housing construction, renovation and operation, and in building construction through a mix of information activities, voluntary initiatives and incentive programs and regulations.

The **Corporate Services Group** is responsible for providing three services: communications, public information and central management. Communications services are internal services that include linguistic services, the production of communications and marketing material (printed and online), exhibits and warehousing for the OEE's initiatives and some programs outside the OEE. Public information activities encompass advertising, special events and other activities that deal directly with the public. Central management services include comptrollership functions, facilities management, operational training and training co-ordination for the entire OEE.

The **Climate Change Group** is responsible for co-managing with Environment Canada the public outreach portion of the Climate Change Action Fund. The Fund was established to build a foundation for the National Implementation Strategy on Climate Change and to initiate early action to reduce emissions. The OEE also shares the lead with Environment Canada in the design and implementation of a strategy for the Government of Canada to build

Figure 1: Organizational Chart of the OEE


Office of Energy Efficiency
Scientific Advisor
Director General
Director Demand Policy and Analysis
Director Transportation Energy Use
Director Industrial, Commercial and Institutional Programs
Director Housing, Buildings and Regulations
Senior Manager Corporate Services
Chief Climate Change Group
Assistant Director Policy Development and Coordination
Chief End-Use Market Analysis
Chief End-Use Program Analysis
Chief Policy Development and Analysis
Assistant Director Policy and Climate Change
Chief Vehicle Fuel Efficiency
Chief Vehicle and Fuels Technology
Chief Energy Efficiency Programs
Chief Federal Buildings Initiative
Chief Industrial Energy Efficiency
Chief Energy Innovators (Private Sector)
Chief Energy Innovators (Public Sector)
Coordinator Voluntary Challenge and Registry Inc.
Chief Baseline Protection
Chief Buildings and Equipment
Chief Housing Programs
Manager Linguistic Services
Manager Corporate Communications Services
Manager Program Communications Services
Manager Administration, Financial and Procurement Services
Manager Internet and Distribution
Conference and Awards
OEE
Office de l'efficacité énergétique
Office of Energy Efficiency
Canada

awareness and understanding of climate change.

1.8.2 Working Groups

Because of their magnitude and/or their cross-sectoral nature, some projects require expertise from all divisions and corporate groups. To this end, six working groups were created in the OEE in 1998 that will, in most cases, be very active in 1999/2000. The specific mandate of each working group is outlined in Annex 2 (page 49). The six working groups are as follows:

- the Annual Energy Efficiency Conference Working Group;
- Canada's Energy Efficiency Awards Working Group;
- the OEE 2000 Working Group;
- the OEE Communications Tools Working Group;
- the OEE International Project Working Group; and
- the Green Floor Working Group.

1.8.3 National Advisory Council on Energy Efficiency

The National Advisory Council on Energy Efficiency was established in 1998 to provide advice and guidance to the OEE in order to make it an innovative government organization and agent for greater energy efficiency. The Council includes energy efficiency experts and leaders from all segments of society. The Council advises on the OEE's:

- strategic direction in meeting federal policy objectives;
- business planning and programs;
- performance measurement and progress reports; and
- other long-term issues.

1.9 Financial Resources in 1999/2000

Financial resources available to the OEE for fiscal year 1999/2000 were $34.6 million in April 1999. It is estimated, however, that a $2.6 million amount will add during the year for the new "House In Order" initiative ($2.1 million) and OEE's contribution to the FCM's municipal Buildings Retrofit Program ($0.54 million), which will bring OEE's total budget at $37.2 million. Section 5 (page 41) provides further details on the OEE's budget and its allocation.

Section 2: Planning Context

2.1 Introduction

The operations of the OEE are shaped by three elements:

- NRCan's planning framework;
- the Energy Sector's planning framework; and
- the OEE's business environment.

This section presents a summary of these key elements.

2.2 NRCan Planning Framework

NRCan's policy goals align its mandate with the federal government's priorities. *Natural Resources Canada 1999/2000: Report on Plans and Priorities* lists five departmental policy goals. Each of these goals is shown in Table 2 below. Goal 5 is a management goal common to all federal departments, which is supported by the practice of business planning. OEE programs contribute to the first three policy goals, but more particularly to Goal 3. Greater energy efficiency and use of alternative transportation fuels contribute to minimizing the impacts of energy use (i.e., emissions of greenhouse gases) on the environment.

Table 2: NRCan Policy Goals

NRCan Policy Goal 1:	To enable Canadians to make balanced decisions regarding natural resources.
NRCan Policy Goal 2:	To sustain the economic and social benefits derived from natural resources for present and future generations.
NRCan Policy Goal 3:	To minimize the environmental impacts of natural resource development and use.
NRCan Policy Goal 4:	To contribute to the safety and security of Canadians.
NRCan Policy Goal 5 (relevant to all federal departments):	To manage the Department efficiently and effectively.

Source: 1999/2000 Estimates – Part III: Report on Plans and Priorities, page 7.

2.3 Energy Sector Planning and Performance Framework

Each year, the Energy Sector develops a planning and performance framework that outlines how its mission will be carried out in support of the Department's policy goals. All branches in the Energy Sector, including the OEE, are expected to mirror the Sector's goals and strategic objectives in their own business plans and to develop performance measures that demonstrate progress in meeting them. The OEE's priorities, activities and performance measurement in 1999/2000 will directly respond to the Energy Sector's imperatives.

2.3.1 Energy Sector Mission

The Energy Sector has developed a mission statement to define why it exists. The mission statement, shown below, reflects the Sector's intention to pursue sustainable development in a way that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The mission of the Energy Sector is as follows:

Through its science and technology, policies, programs and international work, the Sector contributes to job creation and economic growth, facilitates environmental protection and increased public health and safety, and helps to ensure a secure and reliable energy supply for Canadians.

2.3.2 Energy Sector Priorities

Priorities of the Energy Sector are defined at three levels:

(1) Business Priorities

The Energy Sector contributes to sustainable development in three ways: economic development, environmental stewardship and social well-being. In the area of environmental stewardship, domestic environmental priorities for the Energy Sector range from end-use issues, such as using cleaner fuels, to development issues affecting the future of offshore oil and gas. Internationally, the focus is on promoting policies and practices that minimize the environmental impact of energy use. Climate change and nuclear waste issues dominate the short- to mid-term policy agenda. The overarching challenge is how to address Canada's Kyoto commitment without dampening Canada's economic activity.

(2) People and Organizational Development Priorities

The greatest challenge for the Energy Sector in personnel management will be the implementation of the Universal Classification Standard (UCS) in the coming year. Although this initiative will help maintain a flexible and adaptable work force, it represents a big commitment for managers and a significant change for all employees. It will be important for all employees in the Sector to be informed about the UCS and its implementation process.

At the same time, the process of organizational renewal continues through the development of a departmental Retention, Rejuvenation and Recruitment ("3R") Strategy. A component of this strategy is the review of capacity for the science and technology, policy and other communities to identify our ability to meet present and future work challenges and requirements.

(3) Corporate Management Priorities

The Energy Sector acts corporately in several ways, most visibly by leading or supporting initiatives beyond its mandated areas of responsibility, but equally importantly, by acting corporately in the way the Sector conducts its business. Hence, the Sector's corporate contribution extends throughout it's activities and priorities. These include the following:

- the Minister's action plan for "Winning in the Knowledge-based Economy" (known as WINS);
- Treasury Board Secretariat's modernization of comptrollership initiatives;
- year 2000 compliance; and
- the "ResSources" knowledge initiative.

Readers who wish to know more about these initiatives are invited to consult *NRCan 1999/2000 Report on Plans and Priorities or The Energy Sector Business Plan 1999/2002*.

2.4 OEE Environmental Scan

The operations of the OEE are also being shaped by the OEE's business environment. An environmental scan is a useful way to examine this.

An environmental scan is an analysis of the factors (strengths, weaknesses, opportunities and threats) that affect an organization and its direction. These factors can be political, social, technological or environmental. The environmental scan conducted for the OEE business plan is divided into the following three categories:

- clients and partners;
- external factors; and
- internal factors.

2.4.1 Clients and Partners

The mandate of the OEE is to communicate the importance and value of energy efficiency and alternative transportation fuels, and to advise the public on actions they can take to contribute to individual and societal benefits. Therefore, the OEE has clients and partners that help achieve these objectives while treating all citizens fairly and equitably.

The following sections discuss the OEE's clients and partners. The list includes the Canadian public and a wide range of government and industry representatives.

2.4.1.1 The Canadian Public

As an element of operational effectiveness, the OEE considers citizens in general to be distinct from particular clients. All Canadian citizens have a stake in the economic well-being and environmental health of the nation. Citizens belong to the democratic community to whose larger

interests the public service is dedicated. By contrast, particular clients seek to maximize their individual advantage. If unsatisfied, the client is free to end its relationship with the OEE. It is also possible that some client objectives are contrary to the greater social good. Therefore, the OEE is free to dissolve relationships with particular clients because of its wider obligation to all citizens.

2.4.1.2 The Minister of Natural Resources

The OEE is responsible for ensuring that the Minister is well informed on issues related to energy efficiency and alternative transportation fuels. It is also responsible for providing information and analyses necessary for political decision making. Advice to the Minister must be timely, accurate and appropriate in level of detail.

The Minister is the OEE's most important ambassador in the cause of sustainable development. The Minister's presentations and attendance at public and industry events demonstrate the priority the federal government places on energy efficiency improvement. In addition to being rewarded, industry partners are motivated and encouraged to take further action by the Minister's public recognition of their achievements.

2.4.1.3 Industry, Professional and Voluntary Associations

Industry associations – for example, the Retail Council of Canada, the Alliance of Manufacturers and Exporters Canada, the Canadian Home Builders' Association, the Electric Vehicle Association of Canada and the Canadian Vehicle Manufacturers Association – are key partners in the delivery of programs.

Industry funding for consumer programs is limited. Without NRCan's contributions, the amount of energy efficiency promotion activities undertaken by industry associations would be negligible.

NRCan is the dominant national player and co-ordinator in the promotion of energy efficiency in the transportation, residential, industrial and commercial and institutional sectors. However, other agencies such as the Canadian Standards Association, often extend the reach of the Department's activities.

The OEE intends to expand its network of linkages with national and provincial association partners, such as those for professional engineers and architects.

2.4.1.4 Internal Partners

Internal partners share a common interest. The OEE works with several Energy Sector and NRCan branches, both on specific initiatives and in terms of complementary technical, policy and administrative support. The OEE works with the following internal partners:

- The Energy Policy Branch (EPB) provides intelligence and guidance on departmental, interdepartmental and broad government policy developments that affect the OEE. The OEE provides the EPB with information on current policy and program developments in energy efficiency and

alternative transportation fuels, and analyses and develops options for policy and program adjustment. A similar exchange of information and advice serves numerous international energy files.

- OEE officials work with colleagues in the Energy Resources Branch to maintain a co-ordinated approach to shared issues (e.g., vehicle fuel choice and energy systems) and to ensure an appropriate integration of renewable energy policies and programs with those of the OEE.
- The Energy Technology Branch's (ETB's) objective is to assist in the development of technologies that have a significant impact on total energy use and that are economically attractive to energy users. The ETB provides technical support and advice for many OEE programs. OEE policy directives contribute to the ETB's planning of science and technology activities. In some areas, OEE and ETB activities are explicitly linked to form an integrated program.
- The Sector's Management Services Division (MSD) provides service and advice to the OEE in a number of areas, including financial management, human resources administration processes, planning, executive correspondence and intellectual property management. The OEE provides input to Energy Sector projects and files managed by MSD (e.g., the Sector Business Plan).
- The OEE frequently works with NRCan's Communications Branch on ministerial events, speeches, press releases, public opinion research, advertising and other information and marketing activities. The OEE also provides input to corporate and interdepartmental files managed by the Strategic Planning and Co-ordination Branch. Some of the OEE's programs, primarily the Federal Buildings Initiative and the FleetWise program, require close co-operation with NRCan's Assets Management and Administrative Services Branch.

2.4.1.5 Other Federal Departments and Agencies

The OEE and its predecessors have worked for many years with other federal departments and agencies to deliver programs and to provide policy advice. The OEE's key federal partners are Environment Canada, Transport Canada, the Canada Mortgage and Housing Corporation, National Research Council Canada, Public Works and Government Services Canada, Treasury Board of Canada, Finance Canada and Statistics Canada.

2.4.1.6 Other Levels of Government as Promoters of Energy Efficiency

Provincial/Territorial Ministries of Energy

Jurisdiction over energy policy is divided between the federal and provincial/territorial governments. Provinces and territories develop energy policies and regulations associated with the management of their

own energy resources. The OEE considers provincial and territorial ministries of energy to be partners as well as clients sharing a common interest. Communication and co-ordination mechanisms serve to inform the provinces and territories of cross-boundary issues and NRCan's policy, program and regulatory activities. The OEE, through its federal-provincial/territorial mechanisms (e.g., Letters of Co-operation), aims to reduce program duplication and find opportunities to co-deliver programs. In recent years, however, provincial/territorial governments have responded to deficit reduction pressures by reducing energy efficiency program personnel and funding.

The Municipal Sector

The Federation of Canadian Municipalities includes 700 of the larger municipalities across Canada. Members of the Federation promote measures to reduce greenhouse gas emissions and energy use by their citizens. Ongoing work between the Federation and the OEE ensures that information on energy efficiency is shared with and disseminated to municipalities.

2.4.1.7 Other Levels of Government as Custodians of Assets

The custodial departments of provincial ministries, which are responsible for buildings and vehicle fleets, are clients of the OEE programs that limit emissions from government operations. At the municipal level, the OEE promotes municipal fleet and building energy efficiency measures primarily through the Federation of Canadian Municipalities and through direct contacts.

2.4.1.8 Energy Utilities

Electrical

The demand-side management programs of Canadian electric utilities and the support for standards development have been significantly reduced in recent years. Power Smart Inc., an energy efficiency marketing firm funded by a number of electrical utilities, suspended its operations in 1996. Some electrical utilities however, still conduct significant energy efficiency marketing programs.

Natural Gas

The natural gas industry in Canada is aggressively seeking new markets. Some companies are active in marketing energy efficiency initiatives, especially in residential applications, and are potential OEE partners. In the transportation sector, natural gas offers greenhouse gas reduction benefits (20 percent range) and reductions of NO_x emissions, particulates and toxic gases when used as a diesel fuel replacement. Decisions to use natural gas are often based on price rather than a concern for energy efficiency improvements or climate change. Nonetheless, opportunities for partnership exist in many areas where benefits can be identified for greenhouse gas emissions.

The distribution infrastructure for natural gas is almost non-existent in Eastern Canada. The transcontinental pipeline now ends at Lévis, near Québec City. However, natural gas will become available from the Atlantic Coast (Sable Island, Nova Scotia) soon. This will improve prospects for this source of energy in Atlantic Canada and Eastern Quebec.

2.4.2 External Factors

This section describes the major outside influences on the OEE's program and policy development activities. These influences include Canada's international commitments regarding climate change, energy prices, the economy, recent changes in activities by traditional partners, the market for alternative fuels and regulations.

2.4.2.1 Climate Change and Canada's International Commitments

Climate Change has been described as a test case for sustainable development and the management of horizontal files. Although Canada is working toward a six percent reduction in greenhouse gas emissions from 1990 levels by the period 2008–2012, the demand for energy and the resulting emissions continue to increase because of population and economic growth, and the relatively low cost of energy. Major contributors to greenhouse gas emissions are the transportation and industrial sectors. Climate change is, therefore, expected to remain prominent on the government's agenda. In fact, the climate change file will become more complex as the focus changes from the consultation process to the development of the report to federal and provincial energy and environment ministers due at the end of 1999. The Energy Sector and the OEE will be called upon to develop and deliver much of the government's response to Canada's climate change commitments made in Kyoto. At the same time, achieving the targeted emissions reduction will require considerable commitment on the part of the public as consumers, industry as energy producers and users, and by federal, provincial, territorial and municipal governments.

2.4.2.2 Energy Prices

Oil prices fell by 48 percent in 1998 (from $21/bbl. to $11/bbl.). Since then, prices have firmed up and are expected to average $16/bbl. to $18/bbl. in 1999. However, since oil prices are in U.S. dollars, the relative decline of the Canadian dollar has insulated producers from the worst effects of the decline in price.

Energy prices in Canada are low in comparison to most member countries in the Organisation for Economic Co-operation and Development (OECD). This is due in part to the fact that Canada is a major producer of energy. Energy prices have been relatively stable since the beginning of the decade and are not expected to increase for the next 10 to 15 years.

The OEE is committed to promoting energy efficiency measures where they make economic sense. Its role is particularly important when energy prices are low. With low energy prices, the optimum economic level of energy efficiency is significantly less than the efficiency levels that are technically possible. As a result, low energy prices make energy efficiency measures less of a priority for energy users.

2.4.2.3 The Economy

Interest rates are currently at 30-year lows, and the annual inflation rate has been around two percent for the past four

years. The growth rate of the gross domestic product has averaged 2.6 percent over the past three years and was 3.8 percent in 1997. Finance Canada expects that our economy will grow three percent per annum for the next two years. As the economy grows, so too does the demand for energy. Total end-use demand for energy is projected to rise by 27 percent between 1995 and 2020 in a business-as-usual scenario.

2.4.2.4 Reduction in Energy Efficiency Activities Among Traditional Partners

There has been a substantial decline in activities focused on energy efficiency and alternative transportation fuels in provinces and territories over the past few years. At the same time, energy utilities have practically eliminated their demand-side management programs and have reduced their marketing efforts for alternative transportation fuels in some regions.

Nevertheless, nine provincial and territorial energy departments still have energy efficiency and alternative transportation fuels programs. The reduction in activities by provincial and territorial governments and energy utilities has made the OEE a more important player in several provinces. For instance, the federal government (and the OEE in particular) has become a more important source of information to the Canadian public on energy efficiency and alternative transportation fuels.

2.4.2.5 Market for Alternative Fuels

NRCan has supported alternative transportation fuels since 1980. After an early growth phase, markets for propane and natural gas vehicles based on after-market conversions reached a plateau in the early 1990s. Since 1994, these markets have declined as new vehicles have become difficult and more costly to convert. In the same period, car makers delayed the introduction of factory-built vehicles, and incremental costs were too high to provide a reasonable payback to users. Market activity for these fuels is centred in Ontario and British Columbia, where refuelling is considered adequate for future growth of the vehicle market. Recently, in Quebec, Gaz Métropolitain has indicated that it will re-enter the market.

Ethanol-blended gasoline has experienced good growth from a low base over the last few years. By 1997 approximately 40 million litres of ethanol per year were sold through nearly 1000 outlets across Canada. With the completion of a large new plant in Chatham, Ontario, and the planned expansion in ethanol output from other new corn-production plants, prospects are bright for further growth to approximately 300 million litres per year by 2000. There are potentially large greenhouse-gas benefits to be obtained through large-scale replacement of gasoline with ethanol, if this market can be successfully developed.

Methanol as an alternative fuel in heavy-duty and light-duty vehicles was the subject of demonstration programs from 1990 to 1996. Canadian demonstrations ceased

when it became clear that activity in the United States for this fuel was in decline and vehicles became difficult to obtain. In the future, interest might increase in methanol as a hydrogen carrier in fuel cell vehicles.

Battery-powered vehicles are still in the early stages of market testing and research. The OEE began assisting this industry in 1997/1998 through the support and development of a Web site for the Electric Vehicle Association of Canada. This support is continuing in 1999/2000.

2.4.2.6 Regulatory Environment

The *Energy Efficiency Act* came into effect in January 1993. The Act gives NRCan the authority to make and enforce regulations concerning the energy efficiency of energy-using products and to promote energy efficiency and alternative energy sources. Its authority to regulate equipment energy efficiency pertains to the interprovincial and international movement of energy-using equipment. Provincial regulations, where they exist, apply to equipment and products manufactured and sold in a province.

The OEE supports the development of energy efficiency standards for energy-using equipment, houses and other buildings. The availability of standards helps provinces develop their own regulations. Currently, five provinces have equipment regulations, five provinces regulate insulation energy efficiency in new houses, and one province (Ontario) regulates energy efficiency in new buildings. At the same time, industry is becoming more global and there is growing pressure on the federal government to remove barriers to international trade and investment. The OEE has been working with other countries, especially the United States, to harmonize equipment energy efficiency testing procedures and standards. The OEE and the U.S. Department of Energy, through a Memorandum of Understanding, have agreed to work together to harmonize North American policy regarding motor vehicle fuel efficiency.

2.4.3 Internal Factors

2.4.3.1 Budget

The OEE's budget in 1999/2000 will increase over last year, to $37.2 million (i.e. a $34.6 million reference level to which a $2.6 million amount will be added during the year).

2.4.3.2 Year 2000 Compliance

When we reach the year 2000, the use of two digits to represent years in computer hardware and software could cause considerable disruption if corrective action is not taken. This is a global problem that affects all businesses and governments.

The OEE has already taken the necessary initiatives to put its "house in order" in this respect. It is likely, however, that the preoccupation in the Department will remain, especially as we approach December 1999.

2.4.3.3 Celebrating the Millennium

The OEE will celebrate the new millennium with special events and projects. The OEE is working on two millennium projects: a millennium edition of the annual "Energy and the Environment" calendar and the OEE's support to and participation in the Great Canadian Economy Run. The latter is a joint initiative with the private sector to focus on fuel-efficient driving practices as a means to reduce carbon dioxide (CO_2) emissions and to demonstrate the evolution of vehicle technology and design.

Section 3: OEE Strategies and Activities

3.1 Introduction

The OEE's strategies and activities in 1999/2000 will respond directly to its five strategic objectives.

3.2 Strategic Objective 1

The OEE makes a substantial contribution to the National Climate Change Process (NCCP) through its involvement in a number of Issue Tables and its ongoing role in climate change activities related to public education and outreach.

3.2.1 The OEE's Work with Climate Change Issue Tables

Issue Tables, the cornerstone of the NCCP, were created to consult Canadians and develop possible options for addressing climate change. Issue Tables provide expert and detailed input into the analysis, identification and assessment of greenhouse gas reduction opportunities. Each Issue Table is responsible for research and analysis, and for developing option papers on its specific sector or issue.

The OEE participates in five of the 15 Issue Tables established under the NCCP by providing a secretariat function and in some cases serving as Table co-chair.

The five Tables in which the OEE is involved are the following:

- Buildings;
- Industry;
- Municipalities;
- Public Education and Outreach; and
- Transportation.

The OEE also participates in the Analysis and Modelling Group (AMG) of the National Air Issues Co-ordinating Committee. Annex 3 (page 50) summarizes the mandates of the five Issue Tables and the AMG, and the OEE's role in each.

In 1998/1999 most of the Issue Tables developed "foundation papers" to address the current status of their respective sectors, identify and analyse potential opportunities to reduce greenhouse gas emissions, and draft measures to realize these opportunities. In the first quarter of 1999/2000, much work will be devoted by each Issue Table to preparing option papers. These will set out recommended measures to be included in the National Implementation Strategy on Climate Change for delivery to federal energy and environment ministers in late fall 1999.

3.2.2 Climate Change Action Fund and Public Education and Outreach

The Director General of the OEE shares a joint lead in the public outreach aspect of the Climate Change Action Fund (CCAF) with Environment Canada. The CCAF was established to build a foundation for the National Implementation Strategy on Climate Change and to initiate early action to reduce emissions. The public outreach portion of the fund provides $30 million over three years to build public awareness and understanding of climate change and to encourage Canadians to take action to reduce greenhouse gas emissions and adapt to climate change. During fiscal year 1998/1999, OEE staff members participated in the development of the business plan, funding criteria and operational guidelines. More than 100 proposals were given consideration for funding.

The OEE's involvement is expected to be sustained through fiscal year 1999/2000 as the activities of the fund become more visible. Resources will be directed to the funding review process to managing individual projects approved for funding.

The OEE also shares the lead with Environment Canada in the design and implementation of a strategy for the Government of Canada to begin the task of building awareness and understanding of the importance of climate change. In fiscal year 1998/1999 the OEE assumed a lead role in advertising activities, the development of climate change information materials, the provision of a toll-free telephone number and the creation of a climate change Web site. This work is expected to continue throughout fiscal year 1999/2000.

3.2.3 Preparing for the National Implementation Strategy

The OEE anticipates that it will be called upon to play a key role as the National Implementation Strategy unfolds, including designing and implementing federally funded measures. During the next two years, the OEE will prepare for and undertake the organizational adjustments (in terms of strategies, program initiatives, management and information systems, personnel, etc.) needed to develop and implement the Strategy.

3.2.4 Creation of a Climate Change Group at the OEE

In light of OEE's major involvement in the climate change file, the OEE announced in March 1999 the creation of an internal Climate Change Group to co-ordinate climate change public outreach activities and to manage some of the related issues arising from the Issue Table process.

3.2.5 Voluntary Challenge and Registry (VCR) Inc.

NRCan's Minister is the champion for the Voluntary Challenge and Registry (VCR) a key element of Canada's National Action Plan on Climate Change. The VCR was launched in 1995 by federal, provincial and territorial energy and environment ministers to encourage private and public sector organizations to voluntarily limit their net greenhouse gas emissions. It was

incorporated on October 15, 1997, as a stand-alone, not-for-profit organization under the name VCR Inc. to strengthen the public-private partnership and to give the private sector more ownership of the program. A third of its board of directors comprises government representatives appointed by the Minister of NRCan. The deputy ministers of NRCan and Environment Canada are also members of the board.

Several OEE programs, including the Energy Innovators Initiative and the Industrial Energy Efficiency Initiative, co-operate with the VCR Inc. to encourage voluntary energy efficiency measures. In addition, the OEE co-ordinates the yearly production of *Emission Reductions from Federal Operations*, the Government of Canada's report to the VCR Inc. on its activities to reduce its greenhouse gas emissions.

In spring 1998, the Joint Energy and Environment Ministers Committee (JMM) agreed to establish the VCR Inc. as the national registry for credit for early action. For this reason, the VCR Inc. participates in the Credit for Early Action and the Enhanced Voluntary Action Tables, as well as in the Greenhouse Gas Emission Reduction Trading process and the National Round Table on the Environment and the Economy's group on domestic emissions trading.

3.3 Strategic Objective 2

3.3.1 Introduction

The OEE manages 18 programs to increase energy efficiency in all end-use sectors and one initiative to encourage greater use of alternative transportation fuels. The OEE's programs emphasize partnerships and economic investment and are fuel-neutral (except the alternative transportation fuels program). These programs aim to overcome the market barriers of inadequate information and knowledge, institutional deterrents in the energy end-use market, and financial and economic constraints on energy users.

The OEE's market transformation framework uses the following policy instruments:

- leadership by the federal government in reducing atmospheric emissions from its own use of energy;
- information programs to equip energy users with a basic understanding of energy use to alert them to the existence and benefits of energy efficiency opportunities; to increase awareness, acceptance and use of energy-efficient technologies; and to ensure that energy users are aware of NRCan's programs and assistance (including support for research, development and demonstration);

- voluntary programs that create networks of practical support for energy users to improve the efficiency of their energy use; seek the leadership of key private sector figures; and support other federal frameworks, such as the VCR Inc., by encouraging commitment to energy efficiency targets and action plans to realize these targets;
- direct financial incentives to increase the momentum of private sector investment in energy efficiency, stimulate a more rapid uptake of current energy-efficient technologies and the adoption of advanced technologies that are now demonstrated or under development, and to promote the net positive economic effect of energy efficiency improvements; and
- regulations that set performance standards to eliminate less energy-efficient products from the marketplace.

The OEE has developed a strategy for each end-use sector that applies some or all of these policy instruments in one package. The selection of policy instruments reflects the nature of each market in question and the OEE's budget.

Progress indicators have been developed to monitor the performance of each program initiative and to guide program modifications. The OEE also undertakes surveys and analysis of changes in the marketplace to measure progress in improving energy efficiency in each end-use sector and to identify further opportunities for energy efficiency improvements.

The OEE's initiatives provide a strong basis for developing additional measures through their standards and standards-development processes, information mechanisms and partnership networks.

The following outlines the OEE's strategies and main priorities in 1999/2000 in each energy end-use sector.

3.3.2 Residential Sector

3.3.2.1 Context

The residential sector accounts for 19 percent of secondary energy use and 17 percent of CO_2 emissions in Canada. As a result of improvements in energy intensity, residential energy use increased by only 7.1 percent between 1990 and 1997. Without these improvements, energy use would have increased by 17.9 percent because of significant growth in activity in the residential sector and because of colder weather.

The sector includes four principal types of dwellings. Most are single-detached houses, followed by apartments, single-attached dwellings and mobile homes. Because low-rise housing predominate, most NRCan residential buildings programs focus on these dwellings.

More than 80 percent of residential energy is used for space and water heating, followed by operating appliances, lighting and space cooling. Space heating is where the largest energy efficiency gains can be made in the residential sector. By the year 2010, energy-efficient houses built after 1995 will represent only 21 percent of the housing stock; improving the energy efficiency of existing housing will help

reduce the country's overall emissions. The relatively short life span of energy-using equipment (less than 20 years) offers another avenue to further increase energy efficiency in this sector.

3.3.2.2 OEE Strategies and Activities

The OEE's strategies and activities in the residential sector are in three areas: (1) energy-using equipment; (2) housing construction; and (3) housing renovations.

(1) Energy-Using Equipment

The OEE's strategy for energy-using equipment is to gradually exclude from the residential market the least efficient equipment and influence consumers to select – and manufacturers to produce – energy-efficient products that perform higher than the minimum standards.

Canada's Energy Efficiency Regulations are an appropriate instrument for influencing the energy efficiency of new products being sold because of the following:

- householders may not be aware of the energy consumption implications of their equipment purchases;
- the principal types of energy-using equipment (e.g., appliances and furnaces) are relatively standardized and are thus amenable to regulation;
- Canadian federal regulations complement similar regulations in the United States and in some provinces.

The federal regulatory process ensures that minimum performance standards developed by the OEE under the authority of the *Energy Efficiency Act* will not, on average, economically disadvantage consumers. To date, these regulations apply to more than 20 residential energy-using products that account for 73 percent of overall residential energy use.

The OEE's **EnerGuide for Equipment** program informs and encourages consumers to purchase products that are more energy-efficient where consumers' particular circumstances make it worthwhile. The accurate labelling of seven types of household products is a requirement for manufacturers under the *Energy Efficiency Act.* Manufacturers of heating, ventilation and air-conditioning equipment voluntarily list the energy consumption of their products in product brochures through the **EnerGuide Rating Program for Heating, Ventilation and Air-Conditioning (HVAC) Energy Equipment.** These brochures, rather than labels affixed to the products, are more likely to be seen by consumers before they make a decision to purchase.

Regarding energy-using equipment, the OEE's priorities in 1999/2000 include the following:

- implement or initiate the formal process for new or increased stringency of minimum efficiency requirements for certain incandescent reflector lamps, refrigerators, transformers, lamp ballasts, gas furnaces, fireplaces and windows;
- manage a continuing, multi-faceted compliance program for regulated products;

- in conjunction with various partners and agents, expand the EnerGuide for HVAC program into markets for oil-fired furnaces, domestic hot water, and commercial space and service water heating; and
- develop and deliver a new component of the EnerGuide for appliances program to generate better public recognition and market uptake of high-efficiency appliances.

(2) Housing Construction

The OEE's objective for housing construction is to increase the overall energy performance of new housing across Canada. This is achieved by undertaking the following:

- supporting the establishment of a baseline for energy-efficient housing;
- demonstrating to home buyers the economic, health and environmental benefits of energy-efficient houses;
- increasing builders' knowledge of energy-efficient housing technologies and practices; and
- providing a market for energy-efficient housing construction products and equipment.

It is generally more economical to improve the energy efficiency of houses during construction rather than after. Building codes can be an effective instrument in this regard. The regulation of housing construction is a provincial/territorial responsibility. NRCan has worked with the National Research Council and other jurisdictions to develop the ***Model National Energy Code for Houses*** (MNECH). The code provides for minimum levels of energy efficiency on an economic basis, and the OEE encourages its adoption by provincial/territorial and local authorities.

The ***R-2000 HOME Program*** is a voluntary standard for builders who wish to construct houses that will have a high level of energy efficiency. The program trains builders to meet the R-2000 standard, certifies houses built to the standard, and encourages buyers to purchase these more efficient houses. The R-2000 HOME Program seeks to improve the energy efficiency of all new housing construction by promoting the benefits of voluntarily adopting some of the energy efficiency aspects of the R-2000 home into general construction practices.

The OEE's priorities for housing construction in 1999/2000 include the following:

- collaborate with the housing industry and review the technical and administrative requirements of the R-2000 HOME Program to broaden its influence and reach all new residential construction;
- expand the R-2000 HOME Program in the manufactured housing industry to include two more manufacturers;
- expand R-2000 training to reach the tract building industry.

(3) Home Renovations

The OEE's strategy for home renovations is to make the benefits of improved energy efficiency more evident to homeowners and to provide homeowners with appropriate information at the appropriate time so that they consider energy efficiency when renovating their home.

Promoting energy-efficient home renovations is difficult because the opportunities for energy efficiency improvements are not standard and thus not amenable to regulation. There are also too many households to engage in a voluntary commitment program.

By partnering with energy efficiency products and materials manufacturers and dealers, the OEE's **Reno$ense** messages and tips encourage consumers to keep energy efficiency in mind when renovating their homes, using information distribution channels such as the Home Hardware chain of retail stores. The **EnerGuide for Houses** program promotes energy-efficient home renovation through a home energy rating system based on home energy audits. Homeowners are encouraged to use this information to take actions to improve energy efficiency.

The OEE's priorities for home renovations in 1999/2000 include the following:

- expand the delivery of the EnerGuide for Houses (EGH) program in all areas of the country, broaden the range of delivery options by signing additional licences with a wide range of delivery agents in the private and public sectors, and pilot test EGH labelling for new tract housing;
- work with sponsors (manufacturers, utilities and the media) and the retail sector to bring the home energy efficiency message to consumers during the renovation planning stage as well as at the point of sale;
- expand the reach and effectiveness of the Reno$ense initiative by recruiting new sponsors (including media sponsors) and maintaining the retail delivery network; and
- review the portfolio of energy efficiency publications for housing and equipment to attain a complementary mix of publications and electronic media.

3.3.3 Commercial and Institutional Sector

3.3.3.1 Context

The commercial and institutional sector includes trade, finance, real estate, public administration, education and commercial services, including tourism. In 1996 this sector accounted for 13.1 percent of secondary energy use and 12.4 percent of CO_2 emissions in Canada.

Energy intensity improvements limited growth in energy use in the commercial sector to 13.9 percent between 1990 and 1997. Energy use in this sector would otherwise have increased by 15.3 percent, because of activity growth and colder

weather. CO_2 emissions rose by only 9.4 percent between 1990 and 1997. This was a result of switching to energy sources that have a lower carbon content (e.g., replacing heating oil with natural gas and a change in the mix of fuel used to produce electricity).

Energy for this sector is used mainly for space and water heating, space cooling, lighting, motive power for services such as pumping and ventilation in buildings, and street lighting. Reducing the space heating requirements of the existing building stock is where the most gains in energy efficiency can be realized. Energy efficiency improvements are also possible in the area of auxiliary motors, auxiliary equipment and lighting, which account for more than 30 percent of commercial energy use.

3.3.3.2 OEE Strategies and Activities

The OEE's strategies and activities in the commercial and industrial sector are in three areas: (1) energy-using equipment; (2) building construction; and (3) voluntary initiatives.

(1) Energy-Using Equipment

The OEE's strategy for energy-using equipment is to gradually exclude from the commercial and institutional markets the least efficient energy-using equipment in line with its trading partners, and influence consumers to select – and manufacturers to produce – energy-efficient products that are higher-performing than the minimum standards.

The OEE regulates minimum energy performance levels for certain energy-using equipment in the commercial and institutional sector. Because equipment used in this sector is generally less standardized than that used in the residential sector, developing appropriate standards and regulations is more difficult. Nevertheless, regulations are now in place for electric motors, fluorescent lamps and ballasts, incandescent reflector lamps, ice makers and a set of heating and air-conditioning equipment. Other equipment will be included in future regulations.

(2) Building Construction

The OEE's strategy for building construction is to accelerate the change in building design and construction practices by undertaking the following:

- marketing the economic and environmental benefits of more energy-efficient construction;
- increasing the awareness and knowledge of building owners, designers and builders; and
- supporting the incremental cost of designing more energy-efficient buildings.

The OEE has worked with other organizations to develop the *Model National Energy Code for Buildings* (MNECB). The MNECB, like the MNECH, provides for minimum levels of energy efficiency on an economic basis and the OEE encourages its adoption by provincial/territorial and local authorities.

The OEE offers financial incentives through the **Commercial Building**

Incentive Program (CBIP) to encourage the design and construction of new commercial and institutional buildings to levels of energy efficiency that are at least 25 percent better than the levels prescribed in the MNECB. The incentive is aimed at the design community and is intended to improve standard practices so that designing commercial and institutional buildings to high levels of energy efficiency becomes commonplace. Because the required level of energy efficiency is economic, the incentive does not contribute toward the capital investment required to install the more energy-efficient technologies. Rather, it aims to compensate the builder for part of the incremental costs to develop more energy-efficient designs and to use energy efficiency evaluation software.

The OEE's priorities for building construction in 1999/2000 include the following:

- increase the take-up of the CBIP program to the target level of eight percent of commercial/institutional projects;
- expand the program's focus to include multiple-unit residential buildings (MURBs);
- institutionalize training programs that reinforce performance-based design principles; and
- launch a commercial building labelling program that accommodates both CBIP and non-CBIP program participants.

(3) Voluntary Initiatives

There are many types of buildings and enterprises within the commercial and institutional sector. Each sub-sector has its own requirements, constraints and opportunities when it comes to energy use. Given the number of decision-makers that influence energy use in this sector, the OEE implements strategies to influence energy use at the level of individual organizations and at the sectoral level through partnerships with associations.

The energy efficiency programs under the ***Energy Innovators Initiative*** (EII) encourage organizations in the commercial and institutional sector to make a voluntary commitment to increased energy efficiency in their operations because it makes economic and environmental sense. The EII helps organizations focus on energy management strategically and enables them to plan, finance, implement and track their energy-saving initiatives within their management framework. In the course of becoming Energy Innovators and institutionalizing energy efficiency within a corporate culture, organizations are provided with a comprehensive package of services and tools. Organizations that participate in the EII are encouraged to register their energy efficiency commitments and plans with the VCR Inc.

The **Energy Innovators Plus** (EI Plus) program measure aims to engage entire market sectors to become energy-efficient and contribute to the reduction of greenhouse gas emissions through an increased partnership program with associations. In addition, a benchmarking and best practices program was developed for each targeted sector as part of EI Plus. The program also makes funding available to

organizations that participate in the EII for pilot projects that they agree to replicate.

The OEE ensures federal leadership through its **Federal Buildings Initiative** (FBI), which promotes the energy retrofit of buildings owned and operated by the federal government. Many of the products and services described in the preceding were first shown to be successful through their utilization under this initiative.

The OEE's priorities for voluntary activities in the commercial and institutional sector in 1999/2000 include the following:

- launch a new program to encourage energy retrofits of municipal buildings, to be delivered primarily through the Federation of Canadian Municipalities. The program will provide a range of services to municipalities, including project identification, development, financing and management services;
- in collaboration with all federal departments, develop a House in Order Strategy for the federal government to respond to the Kyoto challenge and reduce greenhouse gas emissions from its own operations. The Strategy will enable the government to demonstrate leadership, establish a revised greenhouse gas emissions reduction target and establish a credible greenhouse gas tracking and accountability system. Work will also include conducting related analysis and implementing early actions;
- implement benchmarking and best practices initiatives in selected commercial, institutional and industrial sub-sectors;
- increase the number of FBI contracts and remain on track to achieve a 20 percent reduction in greenhouse gas emissions from the operation of federal buildings by 2005; and
- increase the market penetration of Energy Innovators programs to ensure capture of 30 percent of the commercial sector by 2001.

3.3.4 Industrial Sector

3.3.4.1 Context

In 1996 overall industrial energy demand accounted for 38 percent of secondary energy use and 33 percent of CO_2 emissions in Canada. The industrial sector includes forestry, construction and mining, and all manufacturing. This sector uses energy in industrial processes as a source of motive power to produce heat or to generate steam.

Industrial energy use increased by 14.6 percent between 1990 and 1997. This was because of increased economic activity and an increase in energy use per unit of gross domestic product caused by a structural shift to more energy-intensive activities and a switch from oil to biomass.

Despite this growth in energy use, CO_2 emissions from the industrial sector increased by only 6.3 percent between

1990 and 1997. Fuel switching (biomass generates no net emissions of CO_2) is the principal reason for these emissions savings.

Manufacturing uses the most energy in this sector, accounting for 85 percent of industrial energy use in 1996. Manufacturing comprises six large, relatively energy-intensive single-industry sub-sectors, plus one other sub-sector that includes all other manufacturing. The six large single-industry sub-sectors are cement, smelting and refining, chemicals, pulp and paper, iron and steel, and petroleum refining. Mining is responsible for most of the remaining energy consumption (13 percent). Although these six sub-sectors, in addition to mining, accounted for only about 30 percent of total industrial activity in 1995, they used 78 percent of total industrial energy consumed. In contrast, other manufacturing accounted for 53 percent of industrial output but less than 20 percent of energy use.

In the industrial sector, large and intensive energy users typically invest in energy reduction projects with short payback periods. Because some industrial equipment lasts 35 years or more (e.g., boilers and blast and electric arc furnaces), new technologies are not incorporated into the stock quickly. Energy efficiency improvements are more easily achieved in common products and processes, such as motors and motor systems. Continued switching from fossil fuels to carbon-neutral biomass energy sources (such as wood and pulp waste) also represents an opportunity to further reduce emissions in the industrial sector.

3.3.4.2 OEE Strategies and Activities

The OEE's strategies and activities in the industrial sector are in two areas:
(1) energy-using equipment; and
(2) voluntary action.

(1) Energy-Using Equipment

Much of the sector's energy use is process-related and requires specialized energy-using equipment. This makes regulation difficult. Nevertheless, there are some common products that are amenable to standardization and regulation. The OEE has implemented more stringent minimum efficiency standards for electric motors, and more stringent requirements for fluorescent and incandescent lamps. It is currently investigating the possibility of implementing standards for additional products used in the industrial sector.

(2) Voluntary Action

The OEE's principal focus in the industrial sector is to encourage and facilitate voluntary action, both industry-wide and at the company level. This industry-driven approach to energy efficiency improvements recognizes that industry knows its processes better than government does.

The **Industrial Energy Efficiency Initiative** (IEEI) is a unique, voluntary government-industry alliance that recognizes that improved energy efficiency can help Canadian industry stay competitive and limit greenhouse gas emissions.

The **Canadian Industry Program for Energy Conservation** (CIPEC) provides a means to facilitate the development of energy intensity improvement targets and

action plans for each industrial sub-sector. To support target setting and measurement, the OEE continues to improve the quality and availability of data, and develops an analytical framework for understanding and tracking industrial end-use. CIPEC provides a sector-level impetus for the improvement of industrial energy efficiency.

Building on the above foundation for action, the OEE works with industry through the **Industrial Energy Innovators Initiative** to transfer the sub-sector targets and commitments into company-level action, which is reported through the VCR Inc. This initiative offers products, services and access to other sources of support to help overcome information and resource barriers to implementing energy efficiency opportunities.

The OEE aims to ensure that all companies have a more comprehensive awareness of their opportunities for more productive energy use, have staff with the skills to pursue these options and to compete for capital funding, and have management support to investigate areas of cost savings.

The OEE's priorities for voluntary action at the sector level in 1999/2000 include the following:

- manage the harmonization of CIPEC's sectoral targets for 2010 with the Kyoto commitment;
- implement benchmarking and best practices initiatives in selected industrial sub-sectors;
- increase the number of industrial Task Forces setting targets (from 16 to 21);
- revise the targets of the original six Task Forces;
- increase the number of sectors that are preparing action plans (from 17 to 21).

The OEE's priorities for voluntary action at the company level in 1999/2000 include the following:

- increase the number of registered Industrial Energy Innovators (from 249 to 275);
- increase the number of action plans being prepared (from 226 to 249);
- increase the number of employee awareness campaigns (from 61 to 100);
- increase the number of progress reports from registered Industrial Energy Innovators.

3.3.5 Transportation Sector

3.3.5.1 Context

In 1996 the transportation sector accounted for almost 27 percent of secondary energy use and 34 percent of CO_2 emissions in Canada. The sector consists of two sub-sectors – passenger and freight transportation – that are divided into four mode segments: road, rail, air and marine. Road transport uses the most energy; it accounts for 80 percent of passenger energy use and more than 70 percent of freight energy use.

Energy intensity improvements limited growth in transportation energy use to 14.1 percent between 1990 and 1997. Without these improvements, transportation energy use would have increased by 22.7 percent because of growth in activity and a shift to a greater reliance on road transport, which is more energy-intensive than other modes for shipping. The increase in CO_2 emissions from the transportation sector matched the increase in energy use at 14.2 percent because, unlike the three other sectors already discussed, the transportation sector did not shift toward less carbon-intensive fuels.

3.3.5.2 OEE Strategies and Activities

The OEE focuses on road transportation, which accounts for most of the energy use in this sector. The OEE's strategy is to influence the energy efficiency of the vehicle stock, driver behaviour and the selection of fuels.

The OEE's Transportation Energy Use Division has two priorities in 1999/2000. The first and most important is to substantially increase the harvesting and analysis of information. Quality work by the OEE in this sector requires a strong capability to seek, interpret and analyse information related to transportation energy markets and technology options, and deliver answers and advice to program clients, partners, other managers and policy makers. The second priority is to continue to build program delivery capability and partners in the most prospective areas for reducing energy use in transportation.

Program priorities arise from both the need to meet the expectations of existing clients and partners for increased levels of service, and the opportunity to develop effective programs in the most prospective areas of the transportation sector.

The OEE's strategies and activities in the transportation sector are in three areas: (1) new vehicles; (2) vehicle operations; and (3) future fuels.

(1) New Vehicles

In terms of information, priority for new vehicles will be on market research into consumer behaviour and purchase decisions regarding new vehicles, and projections of the light-duty vehicle sales mix.

In terms of program delivery, the OEE's focus will be on **EnerGuide for Vehicles**. This program has been launched with considerable expectation, but needs continued promotion and careful assessment to ensure its success. A number of countries are interested in this program and are monitoring Canada's lead.

(2) Vehicle Operations

In terms of information, the OEE's priorities for vehicle operations will be the following:

- analysis of vehicle-kilometres travelled for personal use and opportunities for household trip planning;
- analysis of technical factors that affect on-road fuel economy arising from vehicle design, maintenance and handling;

- taking a sectoral approach to market research and data analysis for commercial vehicle fleets (e.g., logging, food operations and urban delivery), which represents a faster and much less expensive approach for obtaining good information on fleet composition, energy use and activity;
- analysis of the opportunity to affect the specification of heavy duty vehicles and equipment. Vehicle specification is much more complex in heavy-duty applications, and improvements in technology will not necessarily translate into vehicle sales and use unless the traditional approaches to equipment specification respond to the opportunities to save energy and reduce costs;
- analysis of the energy-savings potential for vehicle and non-vehicle (air, marine) fleets within the federal government, as part of constructing a business case for emissions reduction from federal operations;
- on behalf of the Transportation Table, analysis and "roll up" of all measures assessed by Table sub-groups. The OEE has commissioned a special accounting model to perform this essential service quickly and flexibly.

In terms of program delivery, OEE activities will include the following:

- the **Auto$mart** Student Driving Kit has had good success penetrating the "easy" part of the driver-training market and needs to tackle less accessible areas;
- a new opportunity has surfaced to work with communities to build tools that help them target specific energy use areas (for example, anti-idling);
- an energy management plan for fleets will be developed that ties together the variety of messages from OEE workshops for managers, and provides administrators with a product to sell at the political level;
- **SmartDriver**, the training program for truckers, has identified a number of opportunities for cost-sharing this year that can reduce demands on the budget for the heavy truck category and some new areas;
- **FleetWise**, the green program for federal fleet managers, is facing a year of transition from a voluntary effort to improve fleet management to a serious commitment to meet fleet emissions targets within a government-wide accountability framework;
- where provincial/territorial attention has been lacking, requests are being received from a number of municipalities for assistance in building a sound analytical framework for local transportation planning.

(3) Future Fuels

In terms of information, the OEE's priorities for future fuels will be:

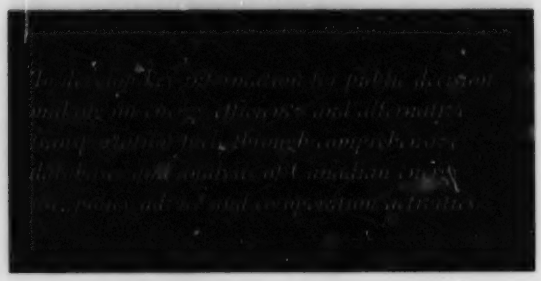
- investigation of the ability to produce fuel ethanol from biomass sources, including its costs and impacts, as a widely hailed renewable resource for solving the greenhouse gas problem in light-duty vehicles; and

- assessment of the environmental and health impacts of changes in fuel specifications, a much-debated subject in the vehicle and petroleum industries and in which the OEE is becoming increasingly involved.

In terms of program delivery, the OEE's priorities will be the following:

- a new natural gas vehicle program has been approved under the Market Development Incentive Payments fund, which will be administered by the OEE with the assistance of vehicle manufacturers and the natural gas industry; and
- an opportunity to assist with the market development of future fuel options through a demonstration program will be assessed, with forecasts of funding levels and impact.

3.6 Strategic Objective 3



3.6.1 Introduction

The OEE is more than its 19 program initiatives. It also fulfils corporate functions that are key to its mandate. These functions will continue in 1999/2000 and are summarized as follows:

- provide policy advice to the Minister and senior officials on energy efficiency and alternative transportation fuels policy and program matters;
- analyse, co-ordinate and develop policy and program options in energy efficiency and alternative transportation fuels;
- develop and maintain a comprehensive and fully integrated data management, analysis and dissemination system on energy end-use, primarily with regard to understanding energy efficiency and its determinants;
- provide economic and energy analysis on energy efficiency matters;
- provide energy and economic analysis and policy advice on the development of energy performance and labelling regulations;
- co-ordinate federal-provincial relations on energy efficiency and alternative energy programs;
- supply information, advice and expert representation on energy efficiency matters to support international initiatives and responsibilities of the Government of Canada;
- monitor and report on energy efficiency and alternative transportation fuels policy and program developments by other (Canadian and foreign) governments;

- prepare reports on energy efficiency and alternative transportation fuels policies and programs, such as the *Report to Parliament on the Administration and Enforcement of the* Energy Efficiency Act; and
- manage the National Energy Use Database (NEUD).

The following briefly describes four of these key functions.

3.6.2 The National Energy Use Database (NEUD)

The rationale for the NEUD is simple: by improving our understanding of where and how energy is used at the end-use level in Canada, the database reveals opportunities to improve energy efficiency. Over time, the NEUD helps Canada track the effectiveness of programs designed to address these opportunities. In conjunction with partners in government and the academic community, the OEE supports the development of energy end-use data in all sectors of the economy and the expansion of Canada's expertise in energy end-use analysis by undertaking the following:

- reviewing existing data in each end-use sector (residential, agricultural, commercial/industrial and transportation);
- assessing information needs in each of these sectors;
- expanding existing surveys or creating new ones to meet these data needs; and
- managing a network of energy end-use data and analysis centres for specific sectors at selected universities across Canada.

The OEE's priorities for the NEUD in 1999/2000 include the following:

- "House in Order" mission data exercise: data collection studies to prepare the first (1998) greenhouse gas emissions inventory from government operations and activities, and to enable the setting of an overall target in 2010 for greenhouse gas reductions for the federal government as a whole;
- development of the NEUD Web site: use the Internet to disseminate currently available information, survey results, studies and analysis produced in relation with the NEUD;
- implementation of the First National Commercial Building Energy Use Survey: the OEE will start to implement its data collection strategy in the commercial buildings sector. The OEE has published *Commercial Building Energy Use Survey Phase 2 – Pilot Testing*, which summarizes the results of a large-scale pilot testing of the survey methodology conducted in summer 1998 and which recommended a data collection strategy in the commercial buildings sector;
- first analysis of household energy use using the results of the 1997 Household Energy Use Survey: the results of this survey, which was conducted by Statistics Canada for the

OEE, are now available. The OEE, plans to publish a first statistical report in 1999/2000 that presents the housing and equipment characteristics information. The OEE will also begin to study household energy use and prepare a report to be published next fiscal year;

- analysis of the National Private Vehicle Use Survey: in 1999/2000 the OEE plans to publish two reports that present the results of the 1994–1996 National Private Vehicle Use Survey;
- development of the NEUD progress indicator: the OEE will review its past activities and prepare a strategic plan for the NEUD and will develop a NEUD performance index.

3.6.3 Analysis of Energy End-Use

The analysis of energy end-use in Canada will continue to be a central activity of OEE in 1999/2000 because doing so brings key information on the influencing factors of energy efficiency in Canada, energy efficiency trends, and the contribution of OEE program initiatives in the joint effort to improve energy efficiency.

3.6.4 Intergovernmental Co-operation

Several provinces and territories also undertake energy efficiency programs. The OEE's primary role is to co-ordinate relations with them through formal Letters of Co-operation or through regular meetings. The OEE also produces a *Directory of Energy Efficiency and Alternative Energy Programs in Canada.*

Internationally, the OEE supports the Energy Sector's roles in areas such as negotiations on European Energy Charter protocols, meetings of the Council of Parties to the Framework Convention on Climate Change, activities of the North American Commission on Environmental Cooperation and several organizations created by the United Nations (e.g., the Commission on Sustainable Development), and implementing Canada's International Business Development Strategy. These activities partly reflect the fact that climate change is a global environmental issue that requires a global response, and partly a desire to lower barriers to international trade in products and related services that can help reduce greenhouse gas emissions. Energy efficiency figures prominently from either perspective.

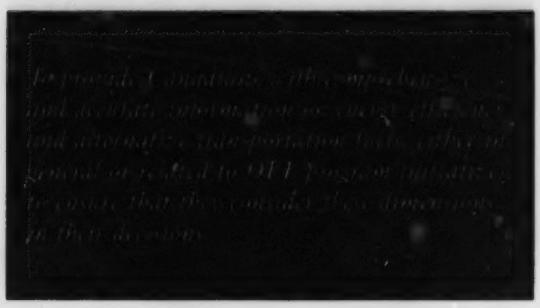
The OEE represents Canada at the International Energy Agency's (IEA's) Energy Efficiency Working Group and in dealings with the Asia-Pacific Economic Cooperation and the Hemispheric Energy Initiative. It regularly contributes information to surveys, studies and other projects undertaken by these international organizations. In some cases, the OEE engages in information transfer to learn from or assist efforts being made by other countries. Although this primarily involves Canada's NAFTA partners (Mexico and the United States) the OEE also exchanges information with IEA and European Union countries on systems to track energy market trends. The OEE also exchanges information and advice with the Energy Policy Branch's International Division.

3.6.5 OEE Reports

The production of reports and studies is an important part of the OEE's strategic Objective 3. Five such reports produced by the OEE are as follows:

- *Report to Parliament on the Administration and Enforcement of the* Energy Efficiency Act;
- *The State of Energy Efficiency in Canada* (annual report of the OEE);
- *Energy Efficiency Trends in Canada*;
- *Emission Reductions from Federal Operations*; and
- *Directory of Energy Efficiency and Alternative Energy Programs in Canada.*

3.7 Strategic Objective 4



The OEE undertakes a number of activities to sensitize and inform Canadians on energy efficiency and alternative transportation fuels, including their economic and environmental merits. These activities will continue in 1999/2000 and will include the following:

- production of communications and marketing material (printed and online) such as the OEE newsletter, the OEE information kit, the "Energy and Environment" calendar and the toll-free publications telephone line;
- exhibits and warehousing for OEE initiatives and some programs outside the OEE;
- public information activities such as advertising, special events, media relations and public service announcements;
- Internet services:
  - OEE corporate web site: the Virtual Library; ongoing development and updating of site, and development and implementation of strategy for the OEE site;
  - web site maintenance and updating of all OEE sites;
  - NRCan Climate Change web site; and
- development and launch of a new comprehensive marketing strategy for the OEE.

3.8 Strategic Objective 5

The three most important activities in 1999/2000 to meet this objective are as follows:

- The OEE will host the inaugural edition of Canada's Energy Efficiency Conference and Trade Show in May 1999 in Ottawa. This event will offer an unparalleled opportunity to target major players in Canada's energy efficiency industry. The theme of the Conference, "Leading Canadians to Energy Efficiency," will be explored through two days of plenary sessions, panel discussions, concurrent sessions, poster presentations and informal discussion groups.
- Concurrent with the Conference and Trade Show, the OEE will present Canada's Energy Efficiency Awards, which recognize Canadian innovation and expertise in energy efficiency.
- In fall 1999 the OEE will begin to prepare for its second energy efficiency conference and Canada's Energy Efficiency Awards to be held in Ottawa October 10–12, 2000.

Section 4: Assessing the OEE's Performance

4.1 Introduction

The OEE's work in assessing its performance has two principal objectives: (1) to respond to the *Report of the Office of the Auditor General of Canada*, released in April 1997, that recommended improving NRCan's current performance information on its energy efficiency initiatives and, in particular, the overall success of NRCan programs in contributing to Canada's climate change goals; and (2) to provide OEE management and its Advisory Council with better performance information on OEE programs in order to improve the selection, planning, monitoring and reporting of OEE program activities. The OEE's work has focused on the following:

- improving the clarity of program objectives;
- establishing more concrete achievement expectations; and
- improving and making reporting more transparent.

In particular, the OEE has undertaken the following:

- developed performance expectations for most of its program initiatives;
- adopted a new indicators format in the 1996/1997 *Report to Parliament on the Administration and Enforcement of the* Energy Efficiency Act, that provided additional information on its program performance.

4.2 Activities in 1999/2000

In 1999/2000, the OEE will continue to expand and improve the use of performance measurement.

- The OEE will develop stronger performance information by which to monitor program progress and improve the linkages between objectives, program outputs and market outcomes for each of its program initiatives. The OEE will use guidelines and criteria developed by the Office of the Auditor General for what it considers to be good performance reporting.
- The OEE will develop an aggregate energy efficiency index as a replacement for using aggregate energy intensity (which is typically measured as secondary energy use divided by economic output in terms of GDP). Aggregate intensity reflects changes in energy intensity and the influence of other factors such as structure, fuel switching and weather. The OEE will develop indices that will normalize these types of influences and provide a way to more closely reflect changes in energy efficiency.
- The OEE will conduct some program-specific surveys in an effort to determine the extent to which program initiatives have contributed to changing consumer behaviour. These surveys

will assist the OEE in developing a clearer understanding of the influence of program initiatives on the changes in energy use that we observe in the market.

- The 1997/1999 *Report to Parliament on the Administration and Enforcement of the* Energy Efficiency Act will contain improved information on OEE program outputs and outcomes.

It is important to keep in mind that measuring performance is an ongoing exercise – a work in progress. Many of the issues raised by the Auditor General are long-term and the process of improvement represents a journey rather than a destination.

The OEE's ongoing development of improved performance measures includes work on the following:

- improving estimates of energy efficiency;
- refining and revising objectives and targets as programs evolve; and
- conducting more surveys that are program-specific to separate the program outcome from the market outcome.

4.3 Program Progress Indicators

The Table in Annex 4 presents the current objectives and targets for each of OEE's 19 program initiatives.

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Section 5: Resources and Budget Allocation

This section provides information on OEE's financial resources and budget allocation in 1999/2000. The OEE's human resources development plan is also outlined.

5.1 Financial Resources

Financial resources allocated to the OEE for fiscal year 1999/2000 will be $37.2 million (i.e. a $34.6 million reference level to which about $2.6 million will be added during the year for the "House In Order" initiative and OEE's contribution to the FCM's Municipal Buildings Retrofit Program. This represents an increase of about $3 million over last year and a $19 million increase over 1997/1998. One reason for the increases is that the February 1997 federal budget allocated $20 million per year in 1998/1999, 1999/2000 and 2000/2001 for energy efficiency and renewable energy measures. The OEE has received $16 million of the annual $20 million. Table 3 shows the reference budget and the main categories of expenditure over the three years.

5.2 Budget Allocation by Program

Table 4 on page 43 indicates the budget for each OEE program initiative in 1999/2000, classified by energy end-use sector. Most OEE funding will be allocated to the buildings sector, followed by the transportation sector and the industrial sector.

TABLE 3 OEE Reference Budget and Main Categories of Expenditure (thousands of dollars)

	1997/1998	1998/1999	1999/2000
Budget	18,460	34,196	34,600
Allocation			
• Salaries	4,957	6,969	8,752
• Operating and management	9,073	17,626	12,625
• Grants and contributions	4,430	9,601	13,226

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5.3 Human Resources

The OEE's success in 1999/2000 and in the years ahead will be attributable first and foremost to the quality of its personnel. The OEE had a full-time equivalent employee complement of 140 persons on April 1, 1999. OEE staff members are highly educated and skilled professionals. The OEE also depends on agency and contract staff to complement its officers and clerical employees.

There will be important challenges in 1999/2000 and in the next few years ahead for the OEE in terms of human resource development and people management. First, as demonstrated in this report, the OEE is and will continue to be at the forefront of one of the most important files for NRCan; i.e., climate change. This means that the expertise and availability of OEE staff will continue to be strongly solicited. It also means that constant attention will have to be paid by OEE senior management to human resource development (training and professional development) and recruitment.

In addition, as mentioned in Section 2, the public service is involved in many management initiatives aimed at its renewal and the management of human resources. Some issues common to the entire public service are the following:

- the Universal Classification Standard (UCS);
- La Relève;
- modern comptrollership; and
- the Service Canada Initiative.

Some of the issues at the Department level are the following:

- the Retention, Rejuvenation and Recruitment ("3R") Strategy;
- workload;
- recognition;
- performance measurement; and
- NRCan's *Guide to Good Management.*

The OEE will have to ensure that its personnel receive information on these initiatives and it will have to make the necessary adjustments that these initiatives require.

TABLE 4 – OEE Program Budgets for 1999-2000 (thousands of dollars)	
General Programs	
1. National Energy Use Database (NEUD)	1,920
2. [illegible]	2,000
Subtotal (General Programs)	**3,920**
Buildings	
3. Model National Energy Codes for Buildings and Houses[2]	–
4. [illegible] Program	900
5. Federal Buildings Initiative/FBI replication[3]	1,000
6. [illegible]	150
7. EnerGuide for Houses	2,607
8. [illegible] Incentive Plus	2,880
9. Commercial Building Incentive Program (CBIP)	9,550
Subtotal (Buildings)	**17,087**
Equipment	
10. Energy Efficiency Regulations	407
11. EnerGuide for Equipment	600
12. EnerGuide Rating Program for Heating, Ventilation and Air-Conditioning Equipment[4]	–
Subtotal (Equipment)	**1,007**
Industry	
13. Industrial Energy Efficiency Initiative	**1,338**
Transportation	
14. Vehicle Fuel Efficiency	170
15. EnerGuide for Vehicles	430
16. Auto$mart	530
17. FleetSmart	530
18. FleetWise	50
19. Alternative Transportation Fuels	275
Subtotal (Transportation)	**1,985**
Total Budget	**25,337**

[1] *does not include the $2.1 million amount expected to be transferred for the House in Order initiative.*
[2] *included under CBIP.*
[3] *includes funding to the FCM for the Municipal Buildings Retrofit Program.*
[4] *included under Energuide for Equipment.*

TABLE 4: OEE Program Budgets in 1999/2000 (excluding salaries) (thousands of dollars)

General Programs[1]	
1. National Energy Use Database (NEUD)	1,920
2. Public Information	2,000
Subtotal (General Programs)	**3,920**
Buildings	
3. Model National Energy Codes for Buildings and Houses[2]	–
4. R-2000 HOME Program	900
5. Federal Buildings Initiative/FBI replication[3]	1,000
6. Reno$ense	150
7. EnerGuide for Houses	2,607
8. Energy Innovators/Energy Innovators Plus	2,880
9. Commercial Building Incentive Program (CBIP)	9,550
Subtotal (Buildings)	**17,087**
Equipment	
10. Energy Efficiency Regulations	407
11. EnerGuide for Equipment	600
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Annexes 1–4

Annex 1: Historical Overview

Natural Resources Canada (NRCan) has a long history of programs to promote energy conservation, energy efficiency and alternative sources of energy. This section reviews how the rationale, focus and approach of NRCan's energy efficiency programs have changed over the years.

Prior to 1973

Until the early 1970s, NRCan was involved principally in providing advice to ministers on issues related to energy and economic development. Few programs were being delivered.

Security of Supply

In the mid- to late-1970s, concern shifted to security of oil supply, in terms of cost and availability. In response to the oil crises of 1973 and 1979, the federal government announced steps to promote energy conservation. This encouraged lifestyle changes to reduce the consumption of energy. For example, people were encouraged to turn down their thermostats and turn off unnecessary lighting.

The 1980s

The Department's expenditures on energy efficiency and alternative energy programs grew significantly during the early 1980s largely because of the National Energy Program. Provincial governments and the federal government used grant programs, especially in residential housing. These programs aimed to persuade Canadians to become more energy-efficient and to offset the reduced profitability of energy conservation investments caused by the regulation of energy prices below world levels.

By the mid-1980s, however, energy prices had been deregulated and had fallen, and there was less concern about the security of the energy supply. Consequently, all levels of government reduced funding for energy conservation and alternative energy activities. The Department reduced or abandoned most of its energy conservation programs and refocused its efforts on research and development and marketing research. Figure 2 on page 47 shows how funding for energy efficiency programs and alternative energy programs has fluctuated, especially during the 1980s.

Environmental Concerns

By the late 1980s, the effect of fossil fuel combustion and greenhouse gas emissions on climate change was becoming a worldwide concern. In response to this and other environmental issues, the federal government announced Canada's Green Plan for a healthy environment in December 1990. The Green Plan reported and outlined Canada's commitment to stabilize greenhouse gas emissions at 1990 levels by the year 2000. To begin

Annex 2: Mandates of OEE Working Groups

1. **OEE Communications Tools Working Group**
   - Establish guidelines on how the OEE "brand" can be positioned within external communications products;
   - Identify cross-marketing opportunities for OEE programs;
   - Liaise with OEE management committee on ongoing and planned OEE activities, and assist the OEE marketing team in identifying and developing internal communications tools.

2. **OEE International Project Working Group**
   Using the knowledge and unique expertise of the OEE, identify and develop an energy efficiency initiative that can be implemented by another country whose state of energy efficiency is less developed than Canada's.

3. **OEE 2000 Working Group**
   The working group on OEE 2000 will develop and manage a process to identify OEE millennium projects. OEE millennium projects will raise the profile of the OEE, showcase energy efficiency as a climate change strategy, and engage OEE partners and stakeholders in millennium celebrations and activities.

4. **Green Floor Working Group**
   - Support the recommended initial courses of action made by the OEE Management Committee;
   - Develop the concept paper for a "green floor" strategy; and
   - Serve as the ongoing voice of the OEE for the Green Floor Initiative.

5. **Annual Energy Efficiency Conference Working Group**
   - Enhance the credibility and profile of energy efficiency;
   - Increase the visibility of the OEE and its initiatives;
   - Promote the sharing of knowledge and expertise in energy efficiency; and
   - Provide the opportunity to discuss the state of energy efficiency in the context of Canada's possible commitment under the Kyoto Agreement.

6. **Canada's Energy Efficiency Awards Working Group**
   Establish an awards process to recognize and publicize Canadian innovation and exemplary progress in energy efficiency improvement.

Annex 3: Mandates of Climate Change Issue Tables and the OEE's Contribution

The OEE contributes to five of the 15 Issue Tables and to the Analysis and Modelling Group (AMG) established as part of the National Climate Change Process.

Public Education and Outreach Table

The Public Education and Outreach (PEO) Table has been mandated to develop a long-term public outreach strategy and to provide advice to other Issue Tables on the public outreach aspects of their work.

The Director General of the OEE is one of two federal co-chairs of the Table. OEE staff works closely with Environment Canada, which provides secretariat services to the PEO Table. Throughout fiscal year 1998/1999, senior staff members of the OEE have played an active role in the development of the Table's work plan and the co-ordination of research projects to explore opportunities and identify optimal approaches to raise awareness and promote action to reduce greenhouse gas emissions.

The OEE will continue to contribute to the Table's deliberations through the spring of 1999, as the PEO options paper is developed and recommendations for the National Implementation Strategy on Climat Change are formulated. A continuing role for the OEE is anticipated as recommendations are considered and the implementation strategy is developed.

Buildings Table

The mandate of the Buildings Table is to identify measures to reduce greenhouse gas emissions in the residential, commercial and institutional sectors of the economy. As one of the co-sponsors of the Buildings Table (Quebec's ministry of natural resources is the other), the OEE has taken a lead role in its operation. The Director General of the OEE serves as one of the co-chairs of the Table, and the OEE provides secretariat services to the Table. In 1998/1999 more than 10 OEE managers and staff members were involved in work for the Buildings Table (three of them full-time). It is expected that the OEE's participation will be less in the summer of 1999 once the options papers are submitted to the Climate Change Secretariat.

During fiscal year 1998/1999, the Buildings Table prepared foundation papers that addressed the current status of the Table's sectors, identified potential opportunities to reduce greenhouse gas emissions, and drafted measures to exploit the opportunities. Early in fiscal year 1999/2000, the Table will decide which measures to include in its options papers. All such papers will be completed by June 1999 and will set out recommended

measures to be included in the National Implementation Strategy, for delivery to federal energy and environment ministers in late fall 1999. The OEE anticipates that it will be called upon to play a key role as the Strategy unfolds, including design and implementation of federally funded measures.

Transportation Table

The Transportation Table has the largest budget ($2.5 million) of all the Tables. Managed by Transportation Canada, the Table's membership includes representatives from the transportation industry, five provincial governments (transportation departments) and one motorist association.

The Table is currently undertaking 17 studies. Eight sub-groups, organized by transportation mode and supported each by a secretariat, manages these studies. The Table as a whole manages additional studies: fuel price elasticities, emissions trading, competitiveness impacts and off-road fuel consumption.

The OEE provides secretariat services for the road vehicle and fuels sub-group. OEE also co-manages with Transport Canada the Analytical Support Group, which provides the analytical co-ordination and "roll up" work to each sub-group.

Industry Table

In conjunction with Industry Canada, the OEE (i.e., the Industrial Energy Efficiency Initiative) provides secretariat services for the Industry Table. This work began in August 1998 and is assumed to continue through the first three quarters of the 1999/2000 fiscal year. Activities include overseeing the execution of foundation and analytical documents, co-ordinating and arranging meetings, and developing a permanent record of decisions.

Municipalities Table

The mandate of the Municipalities Table is to co-ordinate the development and analysis of options to reduce greenhouse gases in the municipal sector for consideration in the National Implementation Strategy. The Table comprises representatives from municipalities, energy services, renewable energy and utility sectors, and from federal and provincial governments.

Analysis and Modelling Group

In addition to consistency and comparability of the results coming from the individual analytical elements, there is a critical need to undertake "roll up" analyses and modelling of the combined impact, costs and benefits of various options. Such analyses and modelling must provide ministers with a sound quantitative and qualitative understanding of the choices they have to make in order to meet Canada's commitment to the Kyoto Protocol

and the economic, social and environmental implications to all sectors and regions in making those choices.

The Analysis and Modelling Group (AMG) operates as a task group of the National Air Issues Coordinating Committee – Climate Change (NAICC-CC) to ensure that National Climate Change Implementation Process analytical needs are answered. It reports to the NAICC-CC through its co-chairs. It operates in an open and transparent manner in providing guidance and support to and in its dialogue with Issue Tables in addressing data, analytical and modelling issues.

The AMG will continue to be very active in 1999/2000. It will undertake the following:

- co-ordinate (in co-operation with Issue Tables co-chairs) the Issue Tables' analytical and modelling work;
- review and report to the NAICC-CC on proposed approaches to "roll up" analyses, including analysis of tools and models to be used;
- review analytical and modelling results from the Issue Tables;
- carry out "roll up" analysis.

Annex 4: Outcome Targets of OEE Program Initiatives

Summary of Outcome Targets

Program	Objective	Target
Model National Energy Codes	To increase the energy efficiency of new buildings in Canada.	To reduce energy intensity in the residential and commercial sectors.
R-2000 HOME Program	To increase the energy efficiency of new houses (i.e., reduce GJ/m^2). To permanently change construction practices.	To maintain program activity in a minimum of 10 provinces/territories. To increase the share of energy-efficient technologies in the construction of new houses.
EnerGuide for Houses	To improve the energy efficiency and reduce the environmental impact of energy use from low-rise housing in Canada.	To improve the efficiency of evaluated and labelled houses by 20% on average (measured in GJ/m^2 per year).
Reno$ense	To encourage Canadians to consider and increase energy efficiency when undertaking home renovations.	To encourage Canadian homeowners to take action on climate change by improving the energy efficiency of their homes.
Energy Innovators/ Energy Innovators Plus	To help organizations in the commercial and institutional sector save money and protect the environment by investing in energy efficiency.	To improve commercial and institutional energy use and intensity. To improve energy intensity by an average of 20 percent through approved energy efficiency and retrofit projects.

Summary of Outcome Targets *(continued)*

Program	Objective	Target
Federal Buildings Initiative	To help government departments and agencies make their buildings more energy-efficient and reduce greenhouse gas emissions.	Achieve a 20 percent reduction in greenhouse gas emissions by 2005 relative to 1990.
Commercial Building Incentive Program	To demonstrate the market feasibility of designing and constructing highly efficient commercial and institutional buildings. To encourage a permanent transformation in general building practices (indirect influence) after the program has ended. To create awareness of the *Model National Energy Code for Buildings* (MNECB).	Short-term target is to have 8 percent of new construction in 2000 be 25 percent more efficient than the MNECB standard. Long-term target is to have MNECB levels 25 percent above current levels by 2005.
EnerGuide for Equipment	To encourage consumers to buy the most energy-efficient major electrical household appliance for the intended use.	Average consumption ratings of total sales to be at least 10 percent above the minimum efficiency levels. To increase the share of products sold that have energy consumption ratings that are at least 10 percent better than the regulated minimum standard.

Summary of Outcome Targets *(continued)*

Program	Objective	Target
EnerGuide Rating Program for HVAC	To encourage consumers to buy the most energy-efficient heating, ventilation or air-conditioning equipment for the intended use.	To increase the capacity-weighted energy efficiency ratings. To increase the share of products sold in higher efficiency categories.
Energy Efficiency Regulations	To eliminate less energy-efficient energy-using equipment from the Canadian marketplace.	Energy savings estimates are required for the Regulatory Impact Assessment Statement (RIAS).
Canadian Industry Program for Energy Conservation (CIPEC)*	To improve sectoral and overall industrial energy intensity.	Interim: 1% overall improvement in industrial energy intensity per year. Long-term: To move from a 1% energy intensity target to a 1.5% energy intensity improvement per year.
Industrial Energy Innovators (IEI)*	To encourage Energy Innovators at the company level, to develop plans and implement energy	Target is reflected through the sector-level goals established through CIPEC.

*CIPEC and the IEI form the Industrial Energy Efficiency Initiative.

Summary of Outcome Targets *(continued)*

Program	Objective	Target
Motor Vehicle Fuel Efficiency	To improve the fuel efficiency of light vehicles. To improve new light-duty motor vehicle fuel consumption (litres/100 kms).	Improvement in motor vehicle fuel consumption beyond the 1998 CAFE (Canadian automobile fuel efficiency targets, which are: i) 8.6 litres/100 kms for passenger cars; and ii) 11.4 litres/100 kms for light trucks.
Auto$mart	To encourage motorists to buy, drive and maintain their vehicles in ways that save fuel and money.	To improve (i.e., reduce) the sales-weighted fuel consumption rating (litres/100 kms) for each car class for each model year after 1994. To narrow the spread (gap) between the lab-tested and on-road fuel efficiency of vehicles over time.
EnerGuide for Vehicles	To inform buyers of passenger cars and light trucks of the opportunity to buy the most fuel-efficient vehicle in their chosen vehicle class that meets their needs.	To improve the ranking of fuel efficiency among the factors that influence the decision to purchase a new vehicle. To push vehicle sales toward the best of class. To improve the average fuel efficiency rating for the population of new vehicles and within each class of vehicle.

Summary of Outcome Targets *(continued)*

Program	Objective	Target
FleetWise	To reduce the environmental impact of the federal vehicle fleet as measured by greenhouse gas emissions. To improve the operational efficiency of the federal fleet, the reduction of greenhouse gas emissions from federal operations and to accelerate the use of alternative fuels in the federal fleet. To reduce the cost of operation of the federal vehicle fleet and promote the *Alternative Fuels Act* within the federal fleet.	To reduce greenhouse gas emissions from federal vehicle fleets by 30 percent by 2000 compared to the level in 1995. To improve fleet fuel efficiency (litres/100 kms).
FleetSmart	Near term (18-24 months) objective is to recruit participants and improve our statistical understanding of the market. Long-term (more than 24 months) objective is to improve fleet fuel efficiency.	

Summary of Outcome Targets

Program	Objective	Target
Alternative Transportation Fuels	To promote the development and use of alternative transportation fuels (ATFs), such as propane, natural gas, methanol, ethanol, electricity and hydrogen, by reducing market barriers to ATF vehicles and refueling infrastructure.	To increase natural gas use from about 2.5 petajoules in 1996 to 3.5 petajoules by 2002. 170 million litres of fuel ethanol blended into gasoline in 2002 from the current level of 40 million litres.
National Energy Use Database	To expand and improve the quality of energy use data used in energy efficiency analysis. To increase the understanding of how energy is used in Canada.	Improved knowledge of energy efficiency through increased coverage and quality of Canadian energy use.
Public Information	To increase awareness among Canadians of the environmental impact of energy use. To encourage Canadians to adopt energy-efficient practices. To encourage Canadians to consider using alternative transportation fuels.	